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A SYSTEM AND METHOD FOR CUSTOMISING CALL ALERTS

Abstract:

A computerised system and method for selecting the nature and/or form of an alert used to announce a call made by a user participating in a customised alert service. The method includes establishing a customised alert service configuration for a participating user, which configuration is then stored on one or more network accessible devices. The participating user uses a first communications terminal to make a call to a second communications terminal, via a first communications service, the second communications terminal then announces the call by activating an alert using a chosen alert descriptor which has been chosen according to the customised alert service configuration for the participating user.

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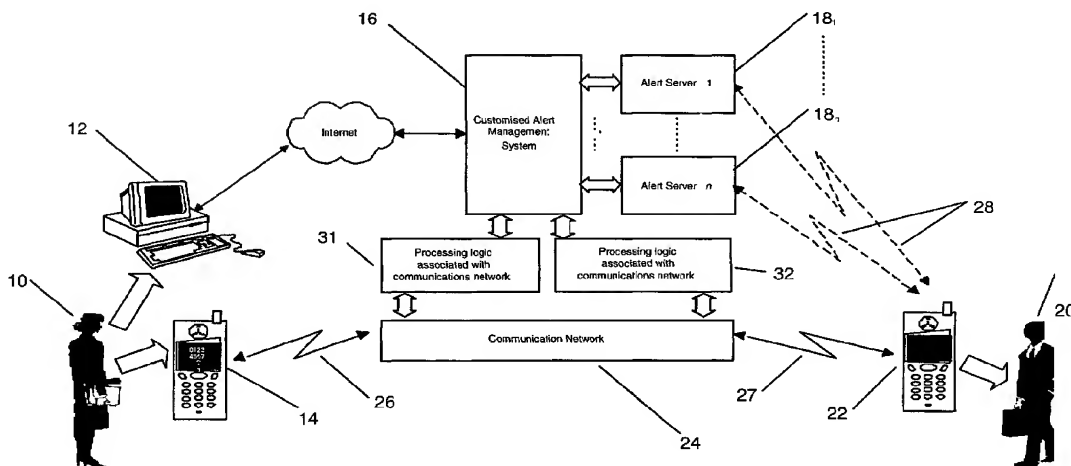
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(54) Title: A SYSTEM AND METHOD FOR CUSTOMISING CALL ALERTS



(57) Abstract: A computerised system and method for selecting the nature and/or form of an alert used to announce a call made by a user participating in a customised alert service. The method includes establishing a customised alert service configuration for a participating user, which configuration is then stored on one or more network accessible devices. The participating user uses a first communications terminal to make a call to a second communications terminal, via a first communications service, the second communications terminal then announces the call by activating an alert using a chosen alert descriptor which has been chosen according to the customised alert service configuration for the participating user.



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A SYSTEM AND METHOD FOR CUSTOMISING CALL ALERTS

Field of Invention

5 The present invention relates to a method and system for enabling a user of a communications terminal ('calling terminal') or communications service ('calling service') to select the form and/or nature of an alert used to announce a call to a second communications terminal ('called terminal'). The present invention
10 relates particularly, but not exclusively, to a method and system whereby an alert used by a called terminal to announce an incoming call is determined, or otherwise controlled, as a consequence of interpretation of information by a computerised system, wherein the information is provided by the calling terminal user or communications service subscriber or person acting on their
15 behalf.

Background of Invention

Many current telephone handsets, particularly mobile telephone handsets, allow
20 a user to select an alert tone sequence to be used to alert the user to incoming calls. As an example, a mobile telephone handset user may be able to choose a preferred alert tone sequence from a range of alert tone sequences stored within a mobile telephone handset's non-volatile memory.

25 Furthermore, some telephone handsets may also offer additional functionality, for example, allowing a user to select and assign particular alert tone sequences to incoming calls from a particular individual or group of individuals. Typically, the telephone handset may be able to use a network provided capability, such as Calling Line Number Identification (CLI), to determine the
30 number of the calling party which is then associated with a pre-selected alert tone sequence. Associating an alert tone sequence with a particular CLI may provide a called terminal user with an early audio warning should a particular person or category of person happen to phone.

Whilst providing a useful capability, it appears that present customisable call alert systems have a number of limitations.

Firstly, it appears that existing customisable call alert systems provide a scheme in which only the called party is able to determine how a calling party will be announced. Thus, a calling party is unable to choose how they will be announced to the called party. In this respect, reference to the terms 'a called party' and 'a calling party' in this specification is to be understood to be reference to a user of a called terminal and a calling terminal respectively.

If a calling party was able to choose how they will be announced to a called party then the calling party might choose to be announced by an alert which was customised in some way to suit, for example, the calling party's personality, job, hobby, tastes, or in accordance with some whim, inter alia. Such a 'customised alert' might also convey, for example, emotion (for example, joy, seriousness, whimsy, anger, elation or urgency) in addition to information (for example, 'this must be John the Builder'). Furthermore, a calling party might choose to have a repertoire of such customised alerts at their disposal so that they are able to be announced by a customised alert appropriate to the time of day, or person called, or type of person called, or country called, or at random or otherwise as they see fit.

A second limitation of present customisable call alert systems is that they appear to only allow selection of alerts from a range of audio based alerts. Typically, telephone handsets are equipped with a range of software controllable outputs including speakers, vibrators, graphical screens and light emitting devices which could also participate in the incoming call alert process.

Thirdly, in the case of the Public Switched Telephone Network (PSTN) and the Public Land Mobile Network (PLMN), not all networks support CLI, and, furthermore, only some legal jurisdictions permit its use. Hence, in certain PSTN/PLMN networks, or legal jurisdictions, existing customisable call alert

systems which utilise CLI may not be able to identify the calling party and thus, will be unable to select an appropriate alert sequence.

5 Lastly, in a PSTN/PLMN, CLI is typically not able to be used where the calling party has an unlisted ('silent', 'ex-directory') telephone number. However, in these cases, although a calling party may not wish their phone number to be transmitted when making a telephone call, they may be happy to be identified by other, less privacy threatening means. In particular, they may be happy to have their telephone number utilised as a part of a process which is used to
10 select the nature of the alert used to announce their call(s) provided their telephone number is not made available to the called party's communications terminal.

It is an aim of the present invention to provide a customisable call alert system
15 which overcomes at least some of the limitations of the existing call alert systems.

Summary of the Invention

20 In general terms, the present invention is directed to a system for, and method of, activating an alert on a communications terminal which has been called by a system user, wherein the activated alert is selected or otherwise controlled in accordance with preferences of the system user.

25 According to a first aspect of the present invention, there is provided a method for selecting the nature and/or form of an alert used to announce a call made by a user participating in a customised alert service, the method including:

- a. establishing a customised alert service configuration for a participating user, the customised alert service configuration being stored on one or
30 more network accessible devices;
- b. the participating user using a first communications terminal to make a call to a second communications terminal, the call being supported by a first communications service; and

- c. the second communications terminal announcing the call by activating an alert using a chosen alert descriptor;

wherein the alert descriptor is chosen according to the customised alert service configuration for the participating user.

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A "communications terminal" may be any suitable type of communications terminal. It may be a terminal specifically designed for the purposes of the present invention, or, it may be a normal commonly available terminal such as a standard touch-tone telephone.

10

According to a second aspect of the invention, there is provided a computerised system for enabling the nature and/or form of an alert used to announce a call made by a user participating in the system to a communications terminal participating in the system to be determined in accordance with the participating user's preferences, including:

15

- a. a plurality of communications terminals, at least some of which are capable of receiving and acting on an alert descriptor;
- b. a data entry device for creating a customised alert service for a participating user;
- 20 c. configuration software for configuring the participating user's customised alert service, the configuring of the participating user's customised alert service including selecting and/or providing at least one alert descriptor for use with the participating user's customised alert service;
- d. a database for storing the participating user's customised alert service configuration;
- 25 e. processing means for choosing an alert descriptor for use with the call made by the participating user to a receiving communications terminal; and
- f. a communications path for communicating alert descriptors to the receiving communications terminal;
- 30

wherein the chosen alert descriptor is selected in accordance with the configuration of the participating user's customised alert service.

General Description of the Invention

Reference to the term 'alert' throughout this specification is to be understood to be reference to a human sensible emission, emitted by a called terminal, intended to draw the attention of a called party to an incoming call. Furthermore, reference to the term 'alert descriptor' throughout this specification is to be understood to be reference to a digital encoded representation of an alert.

10 In a particular embodiment of the invention, the means for storing a participating user's customised alert service configuration and the processing means for choosing an alert descriptor associated with the participating user's customised alert service may be provided by an alert server. In this respect, reference to the term 'alert server' throughout this specification is to be understood to be reference to a network accessible programmed computer which is able to store a participating user's customised alert service configuration.

20 In a preferred form of the invention, a customised alert service may be configured by, or on behalf of, a participating user.

Pursuant to a preferred embodiment of the present invention the configuration of a participating user's customised alert service may include selecting and/or providing ancillary information. In this respect, reference to the term 'ancillary information' throughout this specification is to be understood to be reference to information (for example, rules) provided by, or on behalf of, a participating user, which may assist an alert server or participating terminal in determining the preferred circumstances under which an alert descriptor should be used. In this preferred form of the invention, an alert descriptor is able to be selected using information drawn from the ancillary information associated with the participating user.

For the purposes of this description, a "communications terminal" is generally a terminal such as a telephone handset, mobile telephone handset, videophone or personal computer capable of setting up calls) which is a participant in a customised alert system. A communications terminal may have additional
5 functionality over and above functionality it would have were it a terminal not associated with a customised alert system. In this respect, a communications terminal may be able to receive, decode and correctly act upon incoming calls which are associated with some format(s) or set(s) or group(s) or category(ies) or type(s) or class(es) of alert descriptors, and process particular alert
10 descriptors of supported format(s), set(s), group(s), category(ies), type(s) or class(es) so as to reproduce, though not necessarily with perfect or originally envisaged fidelity, alerts represented by alert descriptors.

On the other hand, the present invention in its preferred embodiments will
15 operate in a co-operative manner with communications equipment which does not have the capabilities necessary for customised alerts. For example, when an unsophisticated telephone handset which cannot handle customised alerts receives a call specifying a customised alert, the handset preferably rings in the normal manner. On the other hand, a system according to the invention
20 preferably allows a call with a customised alert to be made from a telephone handset which does not itself have the ability to receive customised alerts. In this respect, where 'backward compatibility' with existing communications terminal populations is necessary, then when such interaction is required, the customised alert system or component(s) thereof may temporarily disable
25 customised alert system related features and interact with non-participating communications terminals in the manner required were a customised alert system not present. Alternatively, a customised alert system may be designed so as to be transparent (not visible) to non-participating terminals. Alternatively, a customised alert system may make use of both of the aforementioned design
30 strategies in providing for backward compatibility. For example, a customised alert system designed for use in a mobile telephony scenario will typically need to cater for a heterogeneous communications terminal population comprising terminals which are capable of receiving and acting upon customised alerts as

well as terminals which are not. In such a scenario, in particular customised alert system designs which makes use of network to called terminal signalling to communicate alert descriptors to called terminals during call set-up, then this function may be either carried out in a manner which is 'transparent' to non-participating communications terminals (for example by making use of parameters or octets within a call set-up protocol which it is known that non-participating terminals will not inspect or make use of); or alternatively the customised alert system, upon detecting that a communications terminal is a non-participating communications terminal may invoke logic which causes a standard call-set up dialogue to be performed (ie. the call set-up dialogue which would be correct were there no customised alert system).

Each communications terminal will preferably include:

- a. programmatic software and data to enable it to request and retrieve alert descriptors from a customised alert management system and/or programmatic software and data that enables it to accept customised alert descriptors offered to it by a customised alert management system;
- b. additional software and/or hardware which may be required to allow it to correctly act upon (for example, reproduce an encoded alert) alert descriptors intended or required to be supported; and
- c. programmatic software and data and sufficient memory to enable it to locally index, store, manage and retrieve alert descriptors to enable customised alert descriptors to be cached for possible subsequent re-use with future calls which may be associated with the same alert descriptor as an earlier call.

Communications terminals may be designed or configured so as to act upon any alert descriptor that they have the ability to interpret and act upon. Alternatively, communications terminals may be constrained to act upon a particular class (or classes) of alert descriptor. The particular class or classes may be defined in accordance with a constraint (or constraints) which specify type of alert descriptor (for example, only handle audio alert descriptors), format of alert descriptor (for example, only handle MPEG3 alert descriptors) and/or

origin of alert descriptor. For example, a communications terminal may be constrained to act upon only alert descriptors associated with a particular customised alert management system(s), or particular telephone company(ies), or Internet service provider(s), or applications service provider(s), or other kind of service provider or grouping of service providers. The constraint(s) may represent the expressed preferences of participating user or customised alert management system owners (or operators) or both.

In a preferred form of the present invention, a communications terminal may include a sub-system, or sub-systems, which enable further additional features. For example, a communications terminal may include a subsystem, or subsystems, which enable it to perform some, or all, of the following functions:

- a. alert server functions;
- b. customised alert management system functions; and
- c. alert descriptor design / creation / development functions.

The incorporation of additional functionality, in a communications terminal, may allow, inter-alia, for implementations of customised alert systems wherein all necessary functionality of a customised alert system is able to be contained within the communications terminals.

Although reference has been made to an association between a communications terminal and a customised alert system, the association need not be an exclusive one. Indeed, communications terminals may be able to participate in or inter-operate with multiple customised alert systems concurrently.

With reference now to alert descriptors, for the purposes of this invention, an alert descriptor is a digital encoded representation of an alert, such that an alert descriptor is encoded in some format which may be interpreted by communications terminals and consisting, when correctly decoded, of information sufficient to enable a called terminal to produce the alert so represented. In this respect, an alert descriptor may encode or specify sound,

still or moving images, or other forms of multimedia, or a combination thereof, and may further encode information specifying the timing and order in which alert descriptor sub-components should be played out and the output devices to which alert descriptor sub-components should be applied.

5

An example of a simple alert descriptor is a coded bit-stream, which may be decoded by a called terminal, representing an audio waveform together with the instruction that the called terminal should announce the associated incoming call by playing the corresponding alert repeatedly through an appropriate audio
10 output device. The audio 'content' of such a customised alert may be provided in some well known audio format such as 'MIDI', WAV, MP3 or in some other suitable format, whether standards based or proprietary.

In the context of this invention, communications terminals are preferably able
15 to make use of alert descriptors to control or modulate one, a plurality or all of their controllable output devices in order to announce a pending call. Examples of suitable controllable output devices include:

- a. controllable output devices capable of emitting audio signals (for example, speakers and buzzers);
- 20 b. controllable output devices capable of emitting or selectively reflecting electromagnetic radiation (for example, phone or computer or 'Personal Digital Assistant' displays of any type, lamps, light emitting diodes);
- c. controllable output devices capable of mechanical movement (for example, vibrators, mechanical arms); and
- 25 d. controllable output devices capable of emitting odours.

An alert descriptor may be associated with ancillary information defined by or on behalf of the customised alert system subscriber or user which is able to be used by a called terminal to determine how or when to make use of an alert, or
30 by an alert server to determine which of a plurality of alerts associated with a system subscriber or user to provide to a called terminal for use in conjunction with a call. Further, alert descriptors may, or may not, be associated with names or identifiers or labels.

In a preferred form of the present invention, the alert descriptor used to reproduce an alert by a called terminal for a call may be determined in response to computerised processing of ancillary information associated with the alert descriptor or service. In a preferred embodiment of the present invention, the determined alert may correspond to the time at which the call is made, or other circumstances, and possibly additionally depend on the particular person or class of person being called. In this respect, the determination of the correct (or most appropriate) alert to be used for a particular call may be determined through the processing of ancillary information by logic associated with an alert server, or called terminal, whereby the alert to be used is, preferably, a function of 'who' is calling (for example, the calling terminal or calling user), 'who' is being called (for example the called terminal or called party), and preferably 'other' variables.

A particular implementation of the system may not take advantage of the full generality offered by the present invention. In this respect, the complexity of the logic used to select an alert may be simplified in a partial implementation of the preferred invention. For example, the alert to be used may be a function of 'who' is calling and other variables. Alternatively, the alert to be used may simply be a function of 'who' is calling.

The following description provides examples of 'other' variables which may be taken into account, either individually or in combination, during the process by which an alert for use with a particular call is determined.

(a) Temporal Variables

Where the alert to be used is dependent upon the value of a time related variable that applies at the calling party's location or the called party's location or both calling and called party's locations or some other location. Examples of temporal variables include:

(i.) time of day (for example, use a particular alert between 0800 and 1800 as indicated in the time zone of the called party);

(ii.) day of week; and

(iii.) 'weekday/week-end status' (for example, use a particular Alert on weekends).

5 (a) Seasonal and Cultural Variables

Where the alert to be used is dependent upon the value of some 'cultural' variable that applies at the calling party's location or the called party's location or both the calling and called party's locations or some other location. Examples of cultural variables include:

- 10 (i.) current season (for example, Summer, Winter, Autumn/Fall, Spring);
(ii.) public, special or religious holiday (for example, Easter);
(iii.) a special event (for example, for the duration of the 2004 Olympic Games);
and
(iv.) for the duration of some event of interest.

15

(a) Geographic Variables

Where the alert to be used is dependent on the absolute or relative location of the called party, calling party's end or both parties. Examples of geographic variables include:

- 20 (i.) location (for example, City, Region, State, Country); and
(ii.) geographic co-ordinates (for example, latitude, longitude, height, distance from some known place or point.).

(d) Proximity Variables

- 25 Where the alert to be used is dependent on the relative proximity of the called and calling parties. For example, an alert that mimics a Geiger counter, clicking more frequently when the called party and the calling party are closer together than when they are further apart.

30 (e) Personal Variables

Where the alert to be used depends on the value of some 'personal' variable that applies to the calling party or the called party or both parties or some other Party. For example, age, star sign, gender, favourite colour, favourite number.

Any, or all, of the variables presented above could be associated with either the called party, or the calling party or both parties depending on the objectives of a particular system of the present invention and availability of information that would allow variables to be determined. In this respect, the value of a particular variable may be able to be determined from information which may be routinely available in existing telecommunication systems. For example, most current mobile phones include time/date functions which may be able to be used to determine certain temporal, seasonal or cultural variables. As another example, geographical variables may be determined using the prefix of a called party's telephone number and an associated look-up table, or by using a geographical positioning capability such Geographic Positioning System (GPS) which may be associated with or incorporated within a mobile telephone handset.

15

For explanatory purposes, the following examples provide descriptions of possible applications for variables in determining a call alert for use with a call.

(a) Astrological Compatibility Alert

In this example, an alert activated at the called terminal produces may be dependant upon an assessment of the 'astrological compatibility' between the participating caller and the called party, as deduced from 'astrological data' (for example, a star sign) previously provided as a part of a subscription process provided by both called and calling parties. A high level of assessed compatibility may produce an upbeat audio and visual alert. Alternatively, a low level of assessed compatibility may produce a downbeat audio and visual alert. Preferably, the 'astrological compatibility' may be determined using an algorithm which is able to determine compatibility using rules and other information derived from an astrologist).

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30

(b) Potential Partner Alert

In this example, an alert activated on a called terminal may be dependant upon an assessment of the level of 'personal compatibility' between the participating

caller and the called party as deduced from an algorithm combining and comparing data wherein the data preferably includes age, sex, marital status, job, sexual preferences, interests and hobbies, as provided by both parties. Preferably, the algorithm used to determine compatibility may be based on
5 input from a recognised authority, or commentator, on personal compatibility.

(c) 'American and Proud'

In this example, an alert used to announce a call from an participating caller located in the United States to an overseas number may be selected from one
10 of a series based on well known American themes and icons (for example, Star Spangled Banner, America the Beautiful, and the Statue of Liberty). The participating caller may be able to request that one theme always be used, or alternatively, that the system select a theme at random, or in sequence, for calls made by the participating caller or from the participating caller's
15 designated terminal. Although, in this example, reference has been made to a participating caller being located in the United States, it will be appreciated that a similar capability may equally be utilised in the other countries, with corresponding themes and icons. Furthermore, a similar service may also be provided which may be based on city, or sports team affiliation rather than
20 country.

(d) Socially Aware

In this example, an alert used to announce a call from a participating caller may be one of a series based on social and environmental causes. In one instance,
25 a participating caller may be able to pre-select a number of different alerts from a set of available alerts (for example, Save the Whale, Save Rainforests and Forgive 3rd World Debt) and indicate that they should be used at random. Furthermore, a selected alert may make use of images and sounds associated with the selected set (for example, 'Save Rainforests' alerts may drawn in real
30 time from one of a selected number of different rainforests).

(e) Product / Service Promotion

In this example, an alert used to announce a call from a participating caller may be commercially sponsored and used to promote a particular commercial enterprise, service or product. Here, a commercial sponsor may pay an amount of money per successful call to a customised alert service provider and perhaps also to participating callers who adopt their alert, perhaps on a per successful call basis.

In light of the preceding examples, it will be thus appreciated that, depending on the objectives of a particular system of the present invention, the determination of an alert (via the selection of the appropriate alert descriptor for use with a given call) using a computerised process, may be relatively simple. For example, the evaluation of a single variable followed by selection of the alert that corresponds to the value of the evaluated variable. In other cases, the determination of variables and selection of an alert may be relatively complex, requiring for example, the execution of a complex algorithm involving the retrieval and evaluation of multiple variables and possibly also other external information.

In a preferred embodiment of the present invention, where it is difficult to determine the value of a variable, a proxy variable may be used instead. For example, CLID (Calling Line Identification) may be used in place of a participating caller identifier.

Having described alert descriptors and communications terminals, the customised alert management system will now be described.

According to a preferred embodiment of the invention the customised alert system is able to be administered by a customised alert management system. Preferably, the customised alert management system will be a computerised system which may include one or more networked computers or computing devices with sufficient aggregate processing power and storage capacity to operate required application software, databases and support software. In this respect, the customised alert management system may also provide sufficient

aggregate storage for required information and sufficient network connectivity to allow alert descriptors and related information to be distributed to communications terminals in accordance with an alert descriptor transfer mechanism or mechanisms chosen for a particular customised alert system implementation.

A customised alert management system need not be implemented on dedicated hardware. Indeed, a customised alert management system may be implemented on hardware which also implements other customised alert system functionality (such as hardware which implements a communications terminal). Further, a customised alert management system may share other resources such as hardware or software resources with other said customised alert system functionality.

A customised alert management system need not be monolithic but rather may be a distributed entity. In this respect, application programs that form a part of a customised alert system may not be physically co-located, but rather may be located in multiple locations and communicate with each other by means of data links, communications network(s) or communications inter-networks as required to carry out their respective role or roles. A customised alert management system need not be owned or controlled or managed by a single person or legal entity.

The precise capabilities of a particular customised alert management system may depend somewhat on the scope, objectives and manner of implementation of the customised alert system. In this respect, a particular customised alert system design may support particular processes which facilitate the inventive method.

In a simplistic analysis, the process involved in the method of the present invention can be described in terms of two main sub-processes:

- (a) deployment sub-process; and
- (b) call sub-process.

The deployment sub-process is that process of the method of the invention which enables a user or subscriber to select or provide an alert descriptor, or alert descriptors, for future use by communications terminals when announcing
5 calls from a communications service or services designated by the user or subscriber.

The call sub-process is that process of the method of invention during which an alert descriptor, or alert descriptors, is retrieved and perhaps utilised by a
10 communications terminal.

According to the method of the present invention, the deployment sub-process precedes and is a prerequisite to the call sub-process.

15 Preferably, during the deployment sub-process a user interacts with the customised alert management system using an interactive medium, such as via a computing device connected to the Internet or, indeed, using a suitably equipped communications terminal.

20 User interaction with the customised alert management system may be subject to the customised alert management system performing suitable identification processes to authenticate the identity of a user. In this respect, the customised alert management systems will preferably perform a credentials verification process, or processes, to verify whether or not a user is authorised to carry out
25 the functions they seek to carry out.

The credential checking process may include interaction with a database, or databases, associated with a specified communications service(s) and/or communications terminal(s). In one preferred form of the invention the
30 customised alert management system is able to interact with a database, or databases, owned or controlled by other another entity, or entities, such as a telephone company or Internet service provider or communications service provider or some other service provider for the purpose of credentials checking

- Pursuant to the preferred embodiment of the invention, once access to the customised alert management system has been established, a user is able to select, by means of some interactive selection process, or by some other suitable means, an alert or alerts. The selected alerts may subsequently be used by communications terminals to announce calls made to communications terminals by the user, or by other specified person or group or class of persons on whose behalf they are acting in selecting alerts. Alternatively, the selected alerts may subsequently be used by communications terminals to announce calls made from a designated communications service or communications terminal that a user makes use of, or exercises control over, or which are made use of, or controlled by, a person or group or class of persons on whose behalf they are acting.
- 15 In a preferred embodiment of the present invention, the alert selection process provides a user with the ability to select from a range of pre-existing alerts made available by the customised alert management system. Ideally, the present invention also provides a user with the capability to provide an alert, in the form of an alert descriptor, to the customised alert management system, by means of an upload process or by some other suitable means. In this respect, alert descriptors so provided by a user may have been self-developed by or on behalf of the user or else sourced from a 3rd party location such as a web site or indeed a specialised 'Alert Portal' web site.
- 25 In a preferred embodiment of the present invention, the customised alert management system preferably also allows a user to supply by means of an interactive selection, or upload process, ancillary information for use by the customised alert management system to assist it in determining the preferred circumstances under which an alert descriptor, or alert descriptors, should be offered or provided to communications terminals. Ideally, the present invention may enable the customised alert management system to forward any or all of the parameters to other participating entities, such as communications terminals, to enable other participating entities to determine when and/or how

selected, specified, or provided, alert descriptors, or descriptors, should be used.

5 In a preferred embodiment of the present invention, a user may also be able to select a pre-existing alert repertoire comprising one or more alerts which repertoire adheres to a particular theme (or category), or which is selected in accordance with, or in some way reflective of, a famous personality, or place, or event, or thing. The selected theme or category may then be used to announce calls from the user using alerts from the selected repertoire, perhaps changing
10 at random or cyclically from call to call and/or from time to time. For example, such themes might include, 'clean and green', 'Jesus saves', 'Adidas', 'Coca Cola', 'Tiger Woods', 'Fox Movies', 'Sony Top Twenty', 'romantic girl', 'rainforest', 'surfin USA', 'cat lover'.

15 In a particularly simple embodiment of present invention, a user may select an alert using a touch tone (DTMF tone) capable telephone handset. In this regard, a user may select an alert using keystrokes corresponding to numbers or number words which identify a particular alert to the customised alert management system. Alternatively, in a more user friendly version of this
20 particularly simple embodiment of the present invention, the customised alert management system plays an alert or a sequence of alerts to the user through the audio output device of a DTMF capable telephone handset and the user indicates by means of a keystroke or keystroke sequence that they wish to adopt the alert currently being played.

25 Preferably, the customised alert management system establishes sufficient associations between selected alerts, user entered parameters, users, persons, groups of persons classes of persons and other necessary information to enable the customised alert management system to perform operational
30 functions including, inter-alia and in particular, distribution of alerts to communications terminals as and when they are required by communications terminals. In this respect, the customised alert management system preferably

stores the relevant information and associations in a suitable database, or databases.

5 Distribution of alert descriptor(s) and ancillary information to communications terminals may occur prior to, during, or subsequent to the call set-up process for a particular call. In this respect, the timing of alert distribution will depend on which of the multiple options described as a part of the inventive method herein have been implemented in a given system, and perhaps also on the operational circumstances prevailing at the time of call set, including for example the
10 capabilities of communications terminals and underlying networks, network latency(ies) and communications terminal capabilities.

With reference now to the call sub-process, the implementation of the call sub-process may be dependent upon the customised alert system design. A
15 system using the method of invention may support one, some, or all, of three different implementations, namely:

- (a) 'Called End Alert Fetch';
- (b) 'Calling End Alert Offer'; and
- (c) alert push.

20 According to the inventive method, in a customised alert system which supports the 'Called End Alert Fetch' process, alert related processing is temporally and functionally associated with the call set-up signalling dialogue that takes place between the called terminal and its local communications network during a call
25 set-up attempt and may also be temporally and functionally associated with the call set-up signalling dialogue that takes place between the calling terminal and its local communications network during a call set-up attempt. In this regard, during the call set-up process, the called terminal is made aware that, or else determines that, or else assumes that, the calling terminal or calling user or
30 calling communications service is or may be associated with a customised alert system and that an alert descriptor is, or may be available for use with this call. Further, an alert descriptor may be provided to the called terminal by a processing logic associated with the communications network local to the called

terminal during call set-up. Alternatively, the called terminal itself, using information provided to it by or via the local communications network, may locate and retrieve the alert descriptor(s) from an alert server.

- 5 In a preferred form of the system of the present invention using the 'Called End Alert Fetch' call sub-process, the call sub-process includes the steps of:
1. Calling party attempts to set up a call to called party's terminal (for example, in a telephony scenario - by dialling appropriate telephone number and if required pressing a 'Send' button or equivalent).
 - 10 2. Request for call establishment received by called terminal (for example, in a telephony scenario – signalling from local communications network indicating incoming telephone call).
 3. Notification to, or determination by, or assumption by the called terminal that an alert descriptor is, or may be available for use with this call.
 - 15 4. (Where required) determination of location from which alert descriptor may be retrieved by called terminal
 5. (Where required) retrieval of alert descriptor from alert server by called terminal.
 6. Interpretation and utilisation of alert descriptor by called terminal resulting in
 - 20 emission of human sensible output corresponding to the alert descriptor (that is, 'an alert').
 7. (The called party may or may not respond to the alert); and
 8. Optional local storage of alert descriptor for future use.
- 25 It is to be understood that many variations of the steps presented above are possible.

In a particular embodiment of the present invention using the 'Called End Alert Fetch' call sub-process, the called terminal may be able to determine whether

30 or not an alert descriptor is available for a given incoming call. Here, the called terminal determines whether an alert descriptor is available for a given incoming call using alert descriptor availability information provided or relayed to it during the call set-up dialogue, which is initiated by its local

communications network. At this time the local communications network may also provide or relay additional information to enable the called terminal to locate and access an alert server (or alert servers) from which the alert descriptor to be used for the call may be retrieved. In this respect, in one possible scenario, the availability and location information may be relayed from the calling terminal to the called terminal by means of terminal-to-terminal signalling. In this case, the information is effectively provided by the calling terminal, with intervening communications network(s) participating in the call acting as simple relays unaware of the existence of the customised alert system (for example, modern digital telephone networks often provide the ability for transparent terminal-to-terminal information transfer during the call set-up process). In this case also, the alert server may be located within the calling terminal.

Alternatively, the required information may be provided to the called terminal by means of network-to-terminal signalling. In this scenario, communications network(s) participating in the call may be active components in the customised alert system, and one or more of these incorporates or is associated with processing logic which associates calling terminal identifiers (or calling service identifiers) with alert system participation (that is, it 'knows' which of 'its' local terminals or communications services presently participate in the customised alert system). In this respect, in one particular scenario, the said processing logic associated with the network-to-terminal signalling system presently associated with the calling terminal informs a customised alert management system that a calling terminal or communications service is initiating a call and provides the customised alert management system with information (for example, the calling terminal's telephone number or some other suitable identifier and the called terminal's telephone number or some other suitable identifier) which the customised alert management system may use to locate and retrieve alert descriptor(s) and possibly also ancillary information for use by the called terminal with the call. Preferably, the customised alert management system then provides the alert descriptor(s) and possibly also ancillary information so retrieved together with information identifying the called terminal

or service to processing logic associated with the network-to-terminal signalling system presently associated with the called terminal or service (which may or may not be the same network-to-terminal signalling system). Preferably, processing logic associated with the network-to-terminal signalling system presently associated with the called terminal then informs the called terminal that an alert descriptor is available for use with an incoming call and may also provide the called terminal with the identifying name or label or identifier of said alert descriptor to be used with the incoming call and may also provide the called terminal with information such as network address information to assist the called terminal in locating and retrieving the alert descriptor to be preferentially used to announce the call such as network address information and may also provide the called terminal with the alert descriptor to be preferentially used to announce the call

Where the calling communications service and called communications service are associated with (or 'homed to') a single network operator, alert related communications dialogue may make use of recognised signalling protocols and architectures (for example, IN and/or SS7; INAP, TCAP, MAP, TUP, ISUP in the case of the PSTN or PLMN) or the Internet Protocol (IP) suite or the Session Initiation Protocol (SIP) or else other suitable means. In this regard, available options will depend somewhat on the scope, objectives and manner of implementation of the customised alert system as well as the nature of underlying network(s) which form a part of or which are available to the customised alert system. Further, where the calling service and called service are currently associated with (or 'homed to') different network operators, the transfer of alert related information between these operators' networks may additionally make use of recognised or proprietary or customised inter-network signalling protocols, links and networks, and such dialogue may or may not traverse intervening networks such as the Internet or a private network(s).

Further, where alert related communications dialogue is required to traverse the PSTN or PLMN and the Internet or other IP network, such dialogue may take advantage of architectures and protocols designed to facilitate PSTN/PLMN to

IP network inter-working such IETF PINT ('PSTN and IN Internetworking'), SPIRITS ('Service in the PSTN/IN Requesting Internet Service'), SIGTRAN (Signalling Transport), MegaCo ('Media Gateway Control') and enum (Telephone Number Mapping).

5

A customised alert management system may be implemented in part or entirely as an Intelligent Network application or application suite and may make use of standards based or proprietary Intelligent Network precepts, architectures, protocols and capabilities such as the AIN or ITU-T families of Intelligent
10 Network standards.

The precise nature of the dialogue between called terminal and network or called terminal and calling terminal (for example, which requests and which responds) is an implementation issue. Any suitable scheme may be used.

15

The form and nature of the alert related information provided to the called terminal by its local communication network or by the calling terminal may vary from implementation to implementation but may include:

- (a) affirmation that the calling terminal or calling service is a participant in a
20 (default or specified) customised alert system if this is the case;
(b) network name(s) or network address(es) of suggested alert server(s) which may possess the required alert descriptor(s) for use with this call:

- alternatively, or in addition, this information may have been loaded into the called terminal at some earlier time.
- 25 • note that multiple alert servers may be in possession of a required alert descriptor contemporaneously, in which case the optimum alert server for use in a given call may be a function of the geographic or network location of the called terminal at the time of the call.

- (c) information for the called terminal to pass on in unmodified or modified form
30 to alert server(s) to enable said alert server(s) to identify and provide the alert descriptor appropriate to this incoming call. This could take the form of a CLID, or a name identifying the calling party or calling terminal or calling service within the customised alert system, or the name or number or description of an alert

descriptor or any other information that may assist the alert server in locating the most appropriate alert descriptor for this call.

Alternatively the information may simply comprise the alert descriptor to be used with this call, in which case steps 3 through 5 of the 'Called End Alert Fetch' call sub-process can be viewed as a single step, and other information such as described above may not be required.

In an alternative embodiment of a system of the present invention using the 'Called End Alert Fetch' call sub-process, a participating called terminal simply assumes that an alert descriptor may be available for a given incoming call. In this embodiment, where CLID is available, the called terminal receives CLID from the local communications network and passes this on to a pre-determined alert server or servers. The alert server(s) then determine whether an alert is available to be used with this call. The alert server or servers may respond to the called terminal with an alert descriptor where one is available, or in the negative, or otherwise not at all. Furthermore, in this embodiment, a customised alert system may be implemented which does not require the cooperation of the communications network(s) participating in the call (for example, in a telephony scenario – unmodified PSTN or PLMN and/or no support for terminal-to-terminal communications during call set-up).

In a simpler implementation of a system of the present invention using the 'Called End Alert Fetch' call sub-process, and where a called terminal is required to retrieve an alert descriptor from an alert server, an alert server may respond to an alert retrieval request with the single available alert descriptor associated with this calling terminal (or calling party) should it possess the same.

In a more elaborate embodiment of the present invention, an alert server, upon receipt of an alert descriptor retrieval request may additionally apply logic based on ancillary information provided by the user to assist in selecting the most appropriate alert descriptor to forward to the called terminal for use with a given

incoming call. In such a system, the user may have previously selected or provided multiple alerts during the deployment sub-process together with ancillary information indicating when and how these should be used. For example, one alert may have been designated for calls to (designated
5 telephone services of) family and friends, another for (designated telephone services of) calls to business associate, another for calls made on Christmas Days (and so on).

The process of alert descriptor retrieval may be as simple as a request of a
10 named file using a known file transfer process, such as the File Transfer Protocol (FTP), or Trivial File Transfer Process (TFTP) or some other suitable process for the transfer of digital information.

In a particular embodiment of the present invention, alert descriptor retrieval
15 may not be required in the event that the called terminal determines that the required alert descriptor exists locally. This may be because the required alert descriptor was cached in local memory as a result of an earlier call that made use of the same alert descriptor. Alternatively, it may be because the required alert descriptor was loaded into the phone at the time of manufacture or sale, or
20 possibly at some other time.

Preferably, the interpretation and utilisation of an alert descriptor by a called terminal results in the emission of a human sensible output which corresponds to the alert descriptor (that is, a 'Customised Alert'), utilising the applicable
25 features of a communications terminal as described earlier.

In particular embodiments of the present invention, the called terminal user may be given the ability to force particular customised alerts to become 'sticky' (that is, not be erased from cache memory unless and until a more up to date
30 version becomes available).

In a preferred embodiment of the present invention, the called terminal may abandon the call sub-process at any stage in accordance with predefined local

criteria. In this respect, if the call sub-process has not been completed within a predetermined period of time, the called terminal may instead make use of a default or other locally determined alert to announce the call request. In a particular embodiment of the present invention the called terminal retrieves alert descriptor(s) and retains it (them) in cache memory for possible future use even when it is not able use it (them) in conjunction with the current incoming call, perhaps because of excessive network latency or because the called terminal is busy ('engaged') or because the called party is unavailable ('ring-out') or for some other reason.

10

While the embodiments of the 'Called End Alert Fetch' call sub-process presented above are suitable for a wide variety of customised alert systems, it is to be understood that many variations of the embodiments presented above are possible depending on the scope, objectives and manner of implementation of a particular customised alert system

15

Having described the call process applicable to the 'Called End Alert Fetch' process, the "Calling End Alert Offer" process will now be described. In this respect, it is to be understood that the 'Called End Alert Fetch' process and the "Calling End Alert Offer" process may utilise the same deployment sub-process. Furthermore, it is also to be understood that a particular embodiment of the invention 'Called End Alert Fetch' type or of the "Calling End Alert Offer" does not require both 'processes'.

20

In a system of the present invention which supports the "Calling End Alert Offer" process, alert related processing is initiated by the calling terminal, and preferably commences as soon as practically possible after the calling party has provided sufficient information to the calling terminal to uniquely identify the called terminal (for example, in a mobile telephony scenario – following completion of digit entry and depression of 'Call' button).

30

The "Calling End Alert Offer" call sub-process includes the steps of:

1. Calling party attempts to set up a call with called party (for example, in a telephony scenario - by dialling appropriate telephone number and if required pressing a 'Send' button or equivalent). It is to be appreciated that, from this point forward, the call set up and the alert processing proceed asynchronously;
 2. Calling terminal offers alert descriptor to called terminal;
 3. Called terminal retrieves alert descriptor from calling terminal
 4. Called terminal interprets and utilises alert descriptor to announce call.
- 10 The steps presented above provide one example of a sequence of operations which may be applicable to the "Calling End Alert Offer" sub-process. In this respect, it is to be understood that many variations of the steps presented above are possible. For example, the calling terminal may notify the called terminal of the availability of a customised alert but not act as the alert server.
- 15 In this case, the calling terminal would provide the called terminal with sufficient information to allow it to retrieve the alert descriptor from an appropriate alert server using a similar retrieval process to that described for the 'Called End Alert Fetch' call sub-process.
- 20 In a "Calling End Alert Offer" call sub-process the calling terminal is able to provide information to the called terminal for use by the called terminal 'out of band'. Any suitable scheme may be used. Without loss of generality, the following examples are provided:
- (a) where the called terminal and calling terminal each support *both* packet based communication across a packet network or inter-network *as well as* circuit based communication across a circuit switched network (for example, in a telephony scenario – phones such as 2G WAP, 2.5G GPRS or 3G phones or 'Internet Phones' or so-called 'talkative PDAs, which are able to 'dual home' onto both the PSTN/PLMN and a packet network such as the Internet or a service provider IP network or a Corporate Intranet or some other inter-network);
- 25
- 30 (b) where the called terminal and calling terminal have the ability to asynchronously send and receive digital messages to each other in addition to

the ability to support a session based voice call (for example, in a mobile telephony scenario – by means of GSM SMS – (Short Message Service) or USSD (Unstructured Supplementary Services Data bearer service, or the foreshadowed 3GPP MMS (Multimedia Messaging System)).

5 (c) where the called terminal has the ability to send a message or messages to the calling terminal as a part of the call set-up process (for example, transparent terminal-to-terminal information transfer during the call set-up process).

10 In a system of the present invention using a “Calling End Alert Offer” call sub-process, alert processing is asynchronous to call set-up processing and proceeds with the concomitant risk that an alert descriptor may arrive too late to be used by the called terminal to announce a given incoming call (for example, in the event that the call has already been answered). In a particular
15 embodiment of the present invention the called terminal retrieves alert descriptor(s) and retains it (them) for possible future even when it is not able use it (them) in conjunction with the current incoming call, perhaps because of excessive network latency or because the called terminal is busy (‘engaged’) or because the called party is unavailable (‘ring-out’) or for some other reason.

20

Essentially, the alert descriptor processing capabilities of a system of the present invention using a ‘Calling End Alert Offer’ sub-process are the same as those described above for ‘Called End Alert Fetch’ for the case where the called terminal is required to fetch alert descriptors using alert descriptor
25 identifier or CLID provided by its ‘home’ network.

While the embodiments of the ‘Calling End Alert Offer’ call sub-process presented above are suitable for a wide variety of customised alert systems, it is to be understood that many variations of the embodiments presented above
30 are possible depending on the scope, objectives and manner of implementation of a particular customised alert system.

Having described the call sub-process applicable to the "Calling End Alert Offer" process the 'Alert Push' call sub-process will now be described.

5 According to the inventive method, in a system of the present invention which supports the 'Alert Push' process, a user participating in a customised alert system is able to request a customised alert management system to offer alert descriptors together with information such as a calling terminal identifier(s) or
10 calling service identifier(s) (and optionally ancillary information which may also have been provided by the user during the deployment sub-process and which may assist communications terminals in selecting the most appropriate alert descriptor to be used with a given incoming call) to one or more designated communications terminals for said communications terminals to retain for use with future call(s) it/they may receive from said calling user or calling terminal or calling service.

15

In this respect, a difference between the Alert Push process and other processes described hitherto is that with the Alert Push process, the offer of an alert descriptor(s) to a participating communication terminal need not be temporally associated with a call to that communications terminal. Indeed, in
20 one preferred implementation of the Alert Push process, alert descriptors are distributed to designated communications terminals as soon as sufficient information has been provided by the user to the customised alert management system to enable unique identification of said designated communications terminals.

25

In a particular implementation of a customised alert system, the Alert Push process is implemented in addition to either the 'Called End Alert Fetch' or 'Calling End Alert Offer' processes. In this way, a participating user can cause his or her alerts to be pre-distributed to the communications terminals of
30 frequently called friends or associates and made available on an as required basis to less frequently called numbers.

In one possible implementation of the Alert Push process, a user could elect to have selected Alert Descriptor(s) automatically offered and preferably pre-distributed to each and every communications terminal represented by an entry in the user's communications terminal's personal address book. In this possible
5 implementation, changes to a user's communications terminal's personal address book would preferably also automatically cause an update to be triggered and new Alert Descriptor(s) distributed and/or old Alert Descriptor(s) 'withdrawn'.

10 Having described the call process applicable to the 'Alert Push' process other capabilities of present invention will now be described.

In order to overcome limitations which may be imposed on a customised alert system due to network latencies, a particular embodiment of the present
15 invention provides a mode of implementation, herein referred to as 'Use Next Time Mode'.

It is a statistical fact that a person who has called a given number at least once is more likely to call that number again than a person who has never before
20 called the said number. This is often because some underlying relationship, perhaps social or commercial, exists between the two persons.

With 'Use Next Time' mode, an alert descriptor is preferably retrieved and held by a called terminal for use the next and possibly subsequent times a call is
25 received requiring said alert descriptor, should such a call or calls be received at some point in the future. Thus, the 'Use Next Time' implementation mode may have the beneficial effect of reducing the time taken for alert processing in subsequent calls requiring said alert descriptor since the alert descriptor may already be stored within the called terminal and if so will not have to be
30 retrieved from a remote location. More specifically:

(a) when a call associated with an alert descriptor is received, and the required alert descriptor is not found to be present in the called terminal's local memory, a default or locally determined alert may be used to announce said call,

however the alert descriptor is (preferably contemporaneously with the call) retrieved, associated with the calling terminal or service or some proxy thereof (for example, its CLID) and stored locally for possible future use with incoming calls which may require this alert descriptor. and

- 5 (b) when a call associated with an alert descriptor is received, and the required alert descriptor is found to be present in the called terminal's local memory, that alert descriptor is retrieved from local cache memory and used to announce the call.

- 10 Thus, a called terminal is able to collect and store alert descriptors on an ongoing basis in the expectation that at least some of them may be of use in the future. In this respect, because communications terminals have a finite amount of memory available for the storage of alert descriptors, communications terminals which cache alert descriptors (this feature is
15 included but not limited to communications terminals in a system that makes use of "Use Next Time" mode) may implement a scheme that enables alert descriptors of more frequent callers to be retained and alert descriptors of infrequent or one time callers to be eventually discarded. Any appropriate scheme for labelling, indexing and managing of alert descriptors may be used,
20 for example, the caching systems commonly associated with HTTP and the World Wide Web.

- Since the present invention provides users with the capability to modify or change their preferred alert(s), preferably at any time, the alert descriptors
25 retained by a communications terminal for future use can become out of date. In this respect, in a preferred embodiment of the invention wherein caching is utilised, cached alert descriptors are able to be updated. An example of a suitable scheme that is useful in the present invention, is a scheme wherein a communications terminal retrieves an alert descriptor each and every time it
30 receives a call associated with an alert descriptor, and stores this alert descriptor for use the next time it receives a call requiring said alert descriptor should this occur. Such an arrangement is able to ensure that a cached alert descriptor can never age by more the period between two calls associated with

successful retrieval of said alert descriptors (an unknown period of time prior to the fact of a subsequent Call).

5 A system of the present invention which implements 'Use Next Time' mode may also make use of labelled alert descriptors. Broadly speaking, a labelling schema with wide scope will result in a more efficient implementation of 'Use Next Time' mode because of the increased likelihood that multiple system users will have selected a given labelled alert descriptor. It is to be understood here that the term 'scope' refers to the number of network systems or domains
10 within which a given set of identifiers are valid and recognised.

Even greater efficiencies can be gained in systems of the present invention wherein the protocol for delivery of an alert descriptor to a called terminal is temporally ordered so that the alert descriptor label is sent to the called terminal
15 before the alert descriptor. In this regard, it can be seen that a called terminal which caches labelled alert descriptors can then quickly determine whether it already has a given labelled alert descriptor in cache and make use of that copy of the alert descriptor if it does, thereby obviating the delay associated with obtain a second copy of said alert descriptor.

20 The presence, or otherwise, and specific functionality of 'Use Next Time' mode within a system of the present invention may or may not be able to be controlled or varied by a user or system operator or in accordance with some logic able to be implemented by an automated information processing system.
25 For example, a system of the present invention may normally implement 'Use Next Time' mode, but with an exception condition which allows a customised alert descriptor to be used for the call contemporaneous with its retrieval on those occasions where it is able to be obtained in a timely fashion, even if this is an infrequent occurrence.

30 Having described means of overcoming practical difficulties which may result from excessive network latencies, other capabilities of present invention will now be described.

In order to overcome limitations which may be imposed on a customised alert system by underlying network capabilities, an embodiment of the present invention provides a mode of implementation, herein referred to as 'In Band Alert Dialogue Transport' which allows the alert dialogue to be transported using the voice circuit supporting the call to which the alert is associated. It will be seen that 'In Band Alert Dialogue Transport' may be of particular benefit when a customised alert system is to be implemented in conjunction with a second generation circuit switched mobile network such as GSM.

In a system of the present invention which implements 'In Band Alert Dialogue Transport', part or the entirety of the alert descriptor dialogue associated with a call is transported 'in-band' by means of the voice communications channel that exists between the calling terminal and the called terminal during a call. In a preferred implementation, part or the entirety of the alert descriptor dialogue takes place during pauses in the voice conversation, said pauses being automatically detected by some suitable means, or alternatively or additionally, the alert descriptor dialogue commences after the voice conversation has concluded (as indicated by either the calling or called party pressing the 'end-call' button on their phone), release of the voice channel between calling and called party being temporarily deferred until the alert descriptor dialogue has successfully concluded or abandoned.

In an alternative implementation of 'In Band Alert Dialogue Transport', part or the entirety of the alert descriptor dialogue may be transported 'in-call' using the voice communications channel by interleaving the alert descriptor dialogue with the digital representation of the voice conversation in such a way that the voice quality is degraded by an acceptable amount. This technique may also be beneficially combined with the first mentioned technique.

'In Band Alert Dialogue Transport' may take place between the calling terminal and the called terminal and be transparent to the network participating in the call. Alternatively 'In Band Alert Dialogue Transport' may take place between

the called terminal and some other point on the voice circuit between the calling terminal and called terminal whereat injection of digital information is possible – for example in a PLMN scenario, between the called terminal and the MSC to which the called terminal is associated.

5

It is to be understood that the above mentioned in-band technique may be used to transport information about the availability of an alert descriptor to a called terminal, and/or the name or number or identifier of an alert descriptor, and/or an alert descriptor and/or any other information whatsoever which may be of use in a customised alert system.

10

It can be seen that 'In Band Alert Dialogue Transport' is of particular benefit in systems of the present invention wherein called terminals cache alert descriptors, including but not limited to the previously described 'Use Next Time' mode.

15

It can further be seen that 'In Band Alert Dialogue Transport' may be particularly beneficial when implementing a Customised Alert System in a second generation circuit switched mobile network such as GSM.

20

Having described means of overcoming limitations which may be imposed on a customised alert system by underlying network capabilities, other capabilities of present invention will now be described.

25 In systems of the present invention which implement caching, an embodiment of the present invention, herein referred to as 'Cascade Caching' may be used to further optimise the efficiency and user perceived utility of a customised alert system.

30 In a system of the present invention which implements 'Cascade Caching', some or all called terminals and some or all alert servers and one or more caching servers participate in a distributed alert descriptor caching scheme, thereby increasing the likelihood on average that a given alert descriptor will be

able to be sourced from a source closer in terms of download time than it would be in the absence of such a caching scheme. In this regard, any suitable caching architecture, scheme, system or protocols may be used to implement 'Cascade Caching' including adaptations of existing distributed caching architectures, schemes, systems or protocols (for example those based on IETF RFC's including RFC 3040 or the University of California San Diego's 'Squid' caching system).

In a preferred implementation of the present invention, caching is hierarchical and transparent to the called terminal.

In a preferred implementation of the present invention, 'Cascade Caching' spans multiple customised alert services. It will be seen that this provides performance and roaming benefits to both participating customised alert service providers and their users.

In a preferred implementation of the present invention, 'Cascade Caching' spans multiple customised alert services, and a common alert descriptor labelling schema is used throughout the shared 'Cascade Caching' system (though not necessarily exclusively). It will be seen that this provides performance and roaming benefits to both participating customised alert service providers and their users.

In a particular implementation of the present invention, 'Cascade Caching' spans multiple customised alert services, and a common alert descriptor labelling schema is used within the shared 'Cascade Caching' system (though not necessarily exclusively) and common alert descriptor dialogue protocols and data formats are used within and among participating customised alert systems (though not necessarily exclusively). It will be seen that this provides significant performance and roaming benefits to both participating customised alert service providers and their users.

Having described means of optimising the efficiency and user perceived utility of a customised alert system by using 'Cascade Caching', other capabilities of present invention will now be described.

- 5 In a system of the present invention which implements 'Early Alert Descriptor Fetch', alert descriptors are fetched as early as is practically possible during call set-up thereby improving the performance and functionality of a customised alert system.
- 10 In a system of the present invention which implements 'Early Alert Descriptor Fetch', in PSTN or PLMN based customised alert systems, processing logic associated with the switch with which the called terminal is currently associated (or 'homed') begins the process of fetching alert descriptor(s) for use with a call as soon as practically possible after the called terminal or service identifier and
- 15 calling terminal or service identifier have been uniquely identified to (telephone call processing logic associated with) the said switch during the call set-up process.

- In a closely related alternative implementation of 'Early Alert Descriptor Fetch',
- 20 in PSTN or PLMN based customised alert systems, processing logic associated with the switch with which the calling terminal is currently associated (or 'homed') begins the process of fetching alert descriptor(s) for use with a call as soon as practically possible after the called terminal or service identifier and calling terminal or service identifier has been uniquely identified to (telephone
- 25 call processing logic associated with) the said switch during the call set-up process.

- Illustrating 'Early Alert Descriptor Fetch' by means of an example wherein a system of the present invention is implemented in an ITU-T Intelligent Network
- 30 based telephone network, processing logic associated with the SSP of the switch to which the calling terminal is currently associated with (or 'homed') communicates a call set-up request to processing logic associated with the SSP (Service Switching Point) of the switch to which the called terminal is

- currently associated (or 'homed') using SS7 TUP (Telephone User Part) or ISUP (ISDN User Part). When the SSP of the switch to which the called terminal is currently associated (or 'homed') has received sufficient information to uniquely identify the called terminal and calling terminal, it immediately or as soon as is practically possible thereafter sends a message to a customised alert management system requesting the alert descriptor or alert descriptor name, label or identifier, for use with the call. Further, the customised alert management system could advantageously be implemented as an Intelligent Network SCP (Service Control Point), possibly with an associated SDP (Service Data Point), and messages between the SSP and SCP/SDP based customised alert management system transported by means of appropriate Intelligent Network protocols such as the INAP (Intelligent Network User Part) protocol or the TCAP (Transaction Capabilities User Part) protocol.
- 15 Having described 'Early Alert Descriptor Fetch', other capabilities of present invention will now be described.

- In a particular embodiment of the present invention, customised alert system users are able to exercise control over the kinds of customised alerts that they are willing to receive. In this respect, at a minimum, participating terminals preferably allow the customised alert feature to be dynamically enabled or disabled at any time. In a closely related second particular embodiment of the present invention, customised alert system operators may categorise alerts according to the form of their content and tag alert descriptors accordingly so as to allow participating terminals to detect and possibly act upon knowledge of an alert descriptor's category. By way of example, a customised alert system operator may present to its users for selection during the deployment phase a number of 'category 1' alerts, a number of 'category 2' alerts and a number of 'category 3' alerts, wherein 'category 1' includes alerts that the operator considers to be unlikely to be offensive to any recipient in any context – for example, the sound of a train whistle; and wherein 'category 2' includes alerts that the operator considers to be inoffensive under most circumstances, – for example, Tarzan's jungle cry, and wherein 'category 3' includes alerts that do

- not fit into either 'category 1' or 'category 2' - for example the sound of a person breaking wind or ribald imagery. In this regard a user may configure his or her participating terminal so as to always accept 'category 1' alerts, and so as to accept 'category 2' alerts outside of business hours only and when not within certain defined vicinities, and never to accept 'category 3' alerts. In this example, should the operator allow users to upload customised alert descriptors such uploaded alerts may be always automatically designated as 'category 3'.
- 10 In a related third preferred embodiment of the present invention, participating terminals are able to be dynamically configured so as to act upon some but not all aspects or components of customised alert descriptors some or all of the time. In this regard, an operator of a participating terminal may indicate by means of a keystroke sequence or menu selection or by some other means
- 15 that the terminal should for the time being or indefinitely not act upon the audio component of customised alert descriptors but continue to act on other alert descriptor aspects or components such as visual components. As will be appreciated, this feature will be of benefit to a participating terminal operator who either always or for a period of time wishes to have the ability to identify his or her communications terminal by its alert. (For example, when in a place where many other people also have communications terminals with variable alert features, a person may place a higher value on the ability to identify his or her own phone by means of its alert than on the ability to receive calling party determined alerts. Their relative value perception may change once they leave the place however.)
- 20 In a fourth preferred embodiment of the present invention closely related to the third preferred embodiment of the present invention in intent and effect, participating terminals use a pre-defined or user configurable hybrid combination of the called terminal default or user selected alert and customised alert for calls for which a customised alert is available. Further, this
- 25 is preferably though not necessarily a dynamically configurable option which the participating terminal operator can control. In this regard, in one possible implementation, the participating terminal may commence ringing using the default or terminal user selected alert for a period of time and then change to
- 30

the customised alert for the duration of the alert announcement period. It will be appreciated that this embodiment provides the called terminal operator with the benefits that derive from having a pseudo-unique alert of their own selection (such as the ability to be able to identify their own phone when it is 'ringing') as well as the benefits that derive from accepting calling party's preferred alerts (such as the additional information and entertainment value that these provide).

It will be appreciated that the present invention provides a number of different alert descriptor selection and transfer mechanisms which are able to be used by a system using the method of the present invention to distribute the alert descriptors to communications terminals.

It is envisaged that the present invention will find particular application in the area of mobile telecommunications.

It is envisaged that the role of customised alert service system operator or service provider will combine advantageously with that of telephony service provider ('carrier', 'telephone company'). In this regard a customised alert system may be beneficially overlaid onto existing network and service infrastructure and systems and operational support systems such as intelligent network systems, signalling systems, service management systems, subscriber management systems, billing systems and directory systems, thereby providing cost and operational synergies and efficiencies. Further in this regard, a customised alert service may advantageously be integrated with a telephony service provider's existing service portfolio to the benefit of both service provider and customers of existing services.

It is further envisaged that the role of customised alert system operator or service provider will combine advantageously with that of business directory or 'Yellow Pages' directory services. In this regard, a customised alert service may be used to extend the advertising model of a business directory or Yellow Pages service to encompass advertising at the time telephone calls are set up – in particular outbound business telephone calls – through the use of customised alerts which convey advertising or marketing messages; and further

in this regard a customised alert system may be integrated with existing directory systems and databases thereby providing functionality, cost and operational efficiencies.

- 5 As can be inferred, the role of customised alert system operator or service provider will combine to especial advantage in the case of business directory service providers which are also telephony service providers ('carrier', 'telephone company') for a given geographic region.

10 Brief Description of the Drawings

The invention will hereafter be described in greater detail by reference to the attached drawings which show example forms of the invention. It is to be understood that the particularity of those drawings does not supersede the
15 generality of the above description of the invention. In the drawings:

- Figure 1 shows a functional block diagram of a customised alert system in accordance with a preferred embodiment of the present invention;
Figure 2 shows a functional diagram of a customised alert system in
20 accordance with a second embodiment of the present invention;
Figure 3 shows a functional block diagram of the customised alert system in accordance with a third embodiment of the present invention; and
Figure 4 shows a functional block diagram of a customised alert system in accordance with a fourth embodiment of the present invention.

25

Description of a Preferred Embodiment of the Invention

The method and system of the present invention will now be described in relation to a preferred embodiment. It is thus to be appreciated that the
30 following description is not to limit the generality of the invention.

The preferred embodiment of the invention describes the use of a customised alert system that can be used in the method and system of the present

invention to provide a customised alert service for customised alert system users or subscribers.

5 With reference to Figure 1, there is illustrated a preferred arrangement of the present invention which utilises a variant of the 'Called End Alert Fetch' call-sub process, as described earlier.

10 In a system using the inventive method, a user 10 creates a customised alert service using an Internet connected device 12, or a communications terminal 14, to interact with a customised alert management system 16. The creation of a customised alert service preferably involves the user 10 entering user identification information and designating communications services or terminals for which the service is to be applied. Preferably, the entered identification information is used by the customised alert management system 16 to validate
15 the identity of the user 10 on subsequent occasions when the user wishes to access, and perhaps modify, their customised alert service.

Following the creation of a customised alert service, the user 10 may be able to configure their customised alert service by selecting and/or providing an alert
20 descriptor, or alert descriptors, which will preferentially be used to announce calls made to participating communications terminals. The process of selecting and/or providing an alert descriptor(s) may involve the selection of an alert descriptor(s) from alert descriptors presented to the user by the customised alert management system 16. Alternatively, the selection process may involve
25 the selection of alert descriptors from an Internet web-site unrelated to the customised alert management system and the subsequent 'uploading' of the selected alert descriptor(s) to the user's customised alert service.

During the process of configuring their customised alert service the user 10
30 may be able to select and/or provide ancillary information, in the form of rules, preferences, conditions or instructions, which are preferably used to define when and/or how the selected alert descriptors should be used to announce calls from the user, or from designated communication service(s).

The selected alert descriptors, and associated ancillary information are stored on an alert server 18 associated with the customised alert management system 16. In this respect, the customised alert management system 16 makes
5 sufficient associations between the selected alert descriptors and corresponding ancillary information to enable the customised alert management system 16 to perform necessary future functions including, inter-alia and in particular, the distribution of customised alerts to communications terminals. Preferably, the required information is stored in a suitable database or
10 databases.

The alert server 18 and the user's communications terminal 14, if present, need not be physically separate entities. Indeed, the communications terminal 14 may incorporate the functionality of an alert server 18, in which case the
15 communications terminal 14 and an alert server 18 may be the same physical device.

Subsequent to the selection of alert descriptor, or alert descriptors, the user 10
20 is able to utilise the customised alert service. The user 10, uses the communications terminal 14, or Internet connected device 12 with a suitable telecommunications capability (for example, Voice on Internet Protocol) to initiate a call to a called party's 20 communications terminal 22.

25 In response to the detection of a call set-up request, processing logic associated with the communication network 31 preferably extracts identification information from a terminal-to-network signal 26. Ideally, the extracted identification information identifies the user 10, or the communications terminal 14, or communication service or more than one of these.

30 The processing logic associated with the communication network 31 preferably then interacts with the customised alert management system 16, and provides the extracted identification information to the customised alert management

system 16. In a preferred implementation, terminals or services associated with a customised alert service are so identified by 'flags' within the processing logic associated with the communication network 31 and the processing logic associated with the communication network 31 only signals the customised alert management system in regard to impending calls which are known to be associated with a customised alert service, rather than all impending calls. In this respect, 'flags' are preferably set or re-set by means of a dialogue between the customised alert management system and the processing logic associated with the communications network 31 which takes place at or near to the time a new customised alert service is being set up or modified.

In the event that the customised alert management system 16 is unable to locate a customised alert service for the identified entity then the communication network 24 establishes a call using the normal set-up process.

15

However, in the event that the identified entity is associated with a customised alert service, then the customised alert management system 16 proceeds to interpret any ancillary information which may be associated with the identified customised alert service and retrieves the customised alert service information, possibly including one or more alert descriptors, for the customised alert service from one or more of alert servers 18. The customised alert management system 16 then provides the retrieved information to the processing logic associated with the communication network 32.

20

Some or all of the retrieved information, potentially including customised alert descriptor(s), depending on the particular implementation, is then forwarded to the called terminal 22 via the communication path 27. Preferably the retrieved information is transmitted to the called terminal 22 contemporaneously with and as an integral part of or else extension to the call set-up signalling dialogue between the communications network 24 and the called terminal 22, which dialogue would have taken place even were this not a call associated with a customised alert.

25

30

The extent of the information so retrieved by the customised alert management system 16 and so provided to (processing logic associated with) the communication network 24 and thence to the called terminal 22 may vary from system to system in accordance with the design objectives of the particular customised alert system.

In one example of a customised alert system design where it is desired that alert processing should largely be under the control of the called terminal, the called terminal 22 may only be informed that the call or calling user 10, or calling terminal 14, or calling service, is associated with a customised alert. Thereafter, alert processing becomes the responsibility of the called terminal 22, using a process which will be described later.

In another example, in a customised alert system design wherein it is desired that alert processing should largely be controlled by processing logic associated with the communications network 31 32, the information so retrieved and so passed on may indeed incorporate the customised alert to be used for the call. Optionally, the retrieved and passed on information may also include additional information such as some or all of the ancillary information which describes when and/or how an alert, or alerts, should be used by the called terminal 22.

In yet another example, in customised alert system designs with intermediate or alternative objectives, the information so retrieved by the customised alert management system 16 and so passed on to the called terminal 22 may include information to assist the called terminal 22 in performing alert processing. For example, the retrieved information may include a pseudo-unique label or labels or other forms of identifier which may assist the called terminal 22 in identifying the correct alert descriptor or descriptors to be used with said call or calling user 10 or calling terminal 14 or calling service. Alternatively, the retrieved information may be such as to enable, or assist, the called terminal 22 in locating an alert server 18, or alert servers capable of providing the correct alert descriptor or descriptors to be used with the call or calling user 10 or calling terminal 14 or calling service.

In the event that the retrieved information includes an alert descriptor(s), then the communications network 24 may provide the alert descriptor(s) to the called terminal 22 contemporaneously with the call set-up process that takes place
5 between the communications network 24 and the called terminal 22 via the signalling interface between the communications network 24 and the called terminal 22

If the information provided by the customised alert management system 16 to
10 the called terminal 22 via the communications network 24 contains a network name(s) or address(es) of suggested alert server(s), and possibly also information to enable an alert server 18 to identify and provide the alert descriptor appropriate to this incoming call, then the called terminal 22 may attempt to establish communication with the identified alert server or alert
15 servers 18. In a preferred implementation of a system of this design, communication between the called terminal 22 and alert server(s) 18 may take place over the Internet or an IP based network or packet network or inter-network. Subsequent to establishing communication with the alert server 18, the called terminal 22 preferably requests that the alert server 18 provide the
20 appropriate alert descriptor(s) to the called terminal 22. In this respect, where the information provided by the called terminal 22 to the alert server 18 includes information to assist or enable the alert server 18 to identify the alert descriptor, such information may not be restricted to information which originated from the customised alert management system 16. Indeed, such information may also
25 include additional information in relation to the identification of the called party 20 or called terminal 22 as provided by the called terminal 22.

The alert server 18 may respond to an alert retrieval request by providing the single available alert descriptor associated with this user's 10 customised alert
30 service should it possess the same.

Alternatively, the alert server 18, upon receipt of an alert descriptor retrieval request may apply additional logic based on ancillary information provided by

the calling user 10 during the customised alert service set-up process to assist in selecting the most appropriate alert descriptor associated with this user's 10 customised alert service to forward to the called terminal 22.

- 5 The transfer of alert descriptors from the alert server 18 to the called terminal 22 may be accomplished by means of a file transfer process such as FTP or TFTP or by means of GSM SMS (Short Message Service) or GSM USSD (Unstructured Supplementary Services Data) Bearer or by other suitable process or protocol.

10

In an alternative embodiment of the invention, the alert server 18 is physically incorporated within the calling terminal 14, hence the alert dialogue and retrieval process may be accomplished by means of communications between the called terminal 22 and the calling terminal 12, preferably via means of
15 transparent terminal-to-terminal signalling or else by means of GSM SMS or USSD or else one of the 'in-band' techniques described earlier. In this scenario, the alert descriptor information is provided by the calling terminal, with intervening communications network(s) 24 participating in the call acting as simple relays, unaware of the existence of the customised alert system
20 information transaction.

In the preferred embodiment of the invention, the retrieval of an alert descriptor may not be required if the called terminal 22 determines that the required alert descriptor exists locally (that is, in called terminal 22 local memory). This may
25 be because the required alert descriptor was cached as a result of an alert descriptor fetch associated with an earlier call or call attempt that used the same alert descriptor. Alternatively, it could be because the required alert descriptor was pre-loaded into the called terminal 22 at the time of manufacture, or sale, or at some other time.

30

If retrieval of an alert descriptor is required and if for whatever reason the alert descriptor is not able to be received by the called terminal 22 within a time period sufficiently short so as to enable it to be of practical use in conjunction

with the current incoming call then the called terminal 22 may abandon alert descriptor retrieval. In such an event, the called terminal 22 may announce the current incoming call using some default or locally determined alert.

- 5 In the preferred embodiment of the invention, in the situation just described wherein alert descriptor(s) could not be obtained in a timely fashion, the alert descriptor retrieval process nevertheless preferably continues to completion and if and when eventually successful the retrieved alert descriptor(s) and ancillary information (if present) and identifiers (if present) are associated with
- 10 the calling user 10, terminal 14 or service and stored locally by the called terminal 22, preferably in conjunction with a suitable caching system, and preferably used thereafter for future calls from this calling user 10, or calling terminal 14, or calling service should such calls occur. Further, in this respect, should the alert descriptor retrieval process be completed while the called
- 15 terminal 22 is announcing a call using a locally determined alert as described earlier, the called terminal 22 may cease to use the default or locally determined alert and commence using the customised alert described by the alert descriptor so retrieved.
- 20 In the circumstance that the called 22 terminal is busy ('engaged'), the alert descriptor retrieval process is nonetheless preferably carried out and if and when eventually successful the retrieved alert descriptor(s) and ancillary information (if present) and identifiers (if present) are associated with the calling user 10, terminal 14 or service and stored locally by the called terminal 22,
- 25 preferably in conjunction with a suitable caching system, and thereafter preferably used with future calls from this calling user 10, or calling terminal 14, or calling service should such calls occur. This is because an unsuccessful caller will often try to call again at a later time.
- 30 For ease of comprehension, Figure 1 shows both the calling terminal 14 and called terminal 22 as being associated with a single communications network. However it is to be understood that the invention caters for the situation where calling terminal 14 and called terminal 22 are each associated with distinct

communications networks, possibly with any number of additional intervening communications networks. It should further be noted that where the calling terminal 14 and called terminal 22 are each associated with distinct communications networks, these may differ in functional type, geographic location and extent, ownership or technology. In this regard, the only requirement is that the totality of networks spanned between calling terminal 14 and called terminal 22 is capable of supporting a meaningful end to end communicative session between the two terminals. By way of example, the calling terminal 10 may be a POTS terminal associated with a PSTN operator in Chile, while the called terminal 22 may be a GPRS/GSM WAP Mobile phone associated with a wireless network operator in the United Kingdom.

With reference now to Figure 2, there is illustrated a second embodiment of the present invention which utilises a second variant of the 'Called End Alert Fetch' call-sub process described earlier. According to the second embodiment of the present invention, a user 10 selects alert descriptors for announcing calls to a calling party using same method as that described for the preferred embodiment of the invention.

However, in accordance with the second embodiment of the present invention, a method is provided for distributing alert descriptors to participating communication terminals wherein communications network(s) associated with the call are not required to be active participants in the customised alert system.

According to this method, the called terminal 22 assumes that any incoming call for which CLID and/or other suitable identifying information is available may be associated with an alert descriptor. In the case of such a call, during the call set-up process the called terminal 22 passes the CLID and/or other identifying information to an alert server 18 or servers belonging to the same customised alert system as the calling terminal 14 or called terminal 22 as soon as practically possible after receipt of the CLID and/or other suitable identifying information.

Upon receipt of the CLID and/or other identifying information an alert server which finds that it possess the alert descriptor or descriptors associated with the CLID and/or other identifying information, returns the appropriate alert
5 descriptor or alert descriptors to the called terminal 22 as soon as practically possible.

Hence, in this scenario, the called terminal 22 may be able to retrieve an alert descriptor on the basis of the CLID provided by the communication network 24.

10

Further, in a version of this embodiment of the invention which is implicitly though not explicitly illustrated, customised alert management system functionality 16 and alert server functionality 18 are logically and physically integrated into communications terminals 14, 22 so that there is no requirement
15 for a physically discrete and dedicated customised alert management system 16 or alert server(s) 18. This version of the invention therefore defines a distributed customised alert system wherein customised alert system functionality is fully distributed across communications terminals and which may be overlaid onto an unmodified communications network(s) 24.

20

With reference now to Figure 3, there is illustrated a third embodiment of the present invention which utilises the 'Calling End Alert Offer' call-sub process described earlier.

25 In accordance with a third embodiment of the present invention, a third method is provided for distributing alert descriptors to a called terminal 22 wherein the calling terminal 14 offers an alert descriptor(s) to be used with a call to the called terminal 22 at or near the same time that the call is initiated from the calling terminal 14.

30

In this third preferred implementation a user 14 preferably causes to be stored within a calling terminal 14 one or more alert descriptors to be preferentially used to announce calls made from the calling terminal 14 to other

communications terminals, together with any ancillary information which may assist the calling terminal 14 in determining when and/or how said alert descriptor(s) should be used.

- 5 Thereafter, in accordance with the third implementation, each time the calling terminal 14 initiates a call it concomitantly with call set-up attempts to enter into a dialogue with the called terminal 22 for the purpose of causing the transfer of the correct or best or currently most appropriate alert descriptor to the called terminal 22.

10

- If the called terminal 22 is a communications terminal, and provided the called terminal 22 accepts the offer of an alert descriptor, the alert descriptor is transferred from the calling terminal 14 to the called terminal 22 using some suitable means (for example, a suitable file transfer protocol). In this respect, 15 the offer preferably occurs as soon as practically possible after the user 10 has provided sufficient information to the calling terminal 14 to uniquely identify the user 10 or called service or called terminal 22 (for example, in a mobile telephony scenario, following completion of digit entry and depression of 'Call' button).

20

- The calling terminal 14 may delay initiating the call into its local network 24 for some suitable period following the offer in order to maximise the probability that the called terminal 22 will become aware of the existence of an alert descriptor before it has committed to or actually announced the call using a locally 25 determined alert. Alternatively, the calling terminal 14 may delay initiating the call into its local network 24 until it has received acknowledgement from the called terminal 14 that the called terminal 22 has received the alert descriptor offer. In yet another alternative, the calling terminal 14 may delay initiating the call into its local network 24 until it has received acknowledgement from the 30 called terminal 22 that the called terminal 22 has received the alert descriptor associated with this call. In this respect, the called terminal 14 may, upon determining that a call is associated with an alert descriptor delay call set-up processing until the alert descriptor has been successfully received.

The alert descriptor transfer mechanism dialogue that takes place between the calling terminal 14 and the called terminal 22 may make use of protocols and capabilities associated with the network(s) across which the call is set-up, such as standards based or proprietary terminal-to-terminal signalling protocols and capabilities or GSM SMS or USSD or else by means of one of the 'in-band' techniques described earlier. Alternatively, the dialogue may take place across some other network or inter-network not associated with the call (for example the call may take place across the PSTN but alert descriptor dialogues may take place across the Internet 30 or some other network or inter-network) or else by some other suitable means.

In an especially simple version of the third implementation the calling terminal 14 may provide the called terminal 22 with the single alert descriptor which is currently to be preferentially used for calls from the calling terminal 14.

In a more elaborate version of the third preferred implementation the calling terminal 14 may be viewed as housing a customised alert management system 16 and / or alert server 18 serving a single user 10 or calling service or calling terminal 14.

It is to be understood that many other variations of this third preferred implementation may be possible. For example the calling terminal 14 may notify the called terminal 22 of the availability of a customised alert but not act as the alert server 18. In this case the calling terminal 14 may provide the called terminal 22 with sufficient information to allow it to retrieve the alert descriptor from an appropriate alert server 18.

Once the alert server 18 to be used for the retrieval of an alert descriptor has been identified, the process of transferring the alert descriptor to the called terminal essentially follows the steps described above for the first embodiment.

With reference now to Figure 4, there is illustrated a fourth embodiment of the present invention which utilises the 'Alert Push' call-sub process described earlier.

- 5 According to the fourth embodiment of the present invention a user 10 selects alerts (alert descriptors) for announcing calls to a calling party using the same method as that described for the preferred embodiment of the invention.

10 However, according to a fourth embodiment of the present invention, a fourth method is provided for distributing alert descriptors to communications terminals wherein alert descriptor distribution is temporally associated with alert selection rather than call set-up. In this embodiment, following alert selection by or on behalf of a user 10, alert descriptors are distributed to one or more communications terminals which have been directly or implicitly identified by a
15 user 10. Following the identification of target communications terminal 22, or terminals, distribution may be initiated by a calling terminal 14 acting as an alert server 18, or by a customised alert management system 16, or by an alert server 18, or by any combination thereof. The distribution may take place at any suitable time following the identification of target communications
20 terminal(s) and unlike earlier embodiments need not be associated in time with call set-up.

In this respect, the distribution process used by the fourth implementation may be automatic, commencing at a point in time after a user has indicated which
25 communications terminals should be offered alert descriptors. In this regard, the user need only provide sufficient information to allow system processing logic to identify the network addresses of communications terminals. Advantageously, the distribution process should occur in the background and not adversely affect the operation of the communications terminal when the
30 communications terminal is involved in alert distribution. Alternatively, the distribution process may be manually triggered. For example, a mobile telephone operator may scroll through a mobile telephone address book and indicate through some suitable selection process that an alert descriptor or

descriptors should be offered to the communications terminal associated with an entry in the address book.

Alternatively, a user 10 may indicate that an alert descriptor or alert descriptors
5 should be offered to the communications terminal associated with each and every entry in a mobile phone address book. Distribution may then occur at any later point in time, said distribution preferably not interfering with the normal operation of the telephone.

10 A system of the present invention implementing an automated version of the fourth implementation may allow for alerts to be automatically re-distributed when a user 10 causes customised alerts to be changed.

Furthermore, a system of the present invention implementing an automated
15 version of the fourth implementation may allow for alerts to be automatically re-distributed from time to time to allow for the possibility that target called terminals may have lost their copy, or copies, of an alert descriptor, or alert descriptors, previously distributed.

20 The fourth implementation may also allow target communications terminals 22 to incorporate logic which enables the operator of a communications terminal the opportunity to accept or reject or reject with reasons the offer of a customised alerts, and where provided, reasons may be relayed to user, either manually or through the automatic interpretation of parameters previously set
25 by the user.

The present invention is applicable to any communications system or network supporting one-way or two-way communications sessions and which makes use of a call set-up process that includes a step wherein energy is applied to
30 controllable output device(s) or transducer(s) on the called party's communications terminal so as to draw the attention of the called party to an incoming call request.

This includes for example the PSTN/PLMN, private telephone networks, teleconferencing systems and networks, video-telephony systems and networks, video-conferencing systems and networks and other current and future forms of communications network which posses the concept of a 'call' or
5 'communications session'

Telephone systems are within the scope of the invention and in the case of telephony, the invention may be said to describe systems and processes by means of which the form and nature of the alert used by a Telephone Handset
10 to announce an incoming call request may be remotely specified and controlled so as to allow a person making a telephone call to choose the preferred manner in which their call will be announced to the person or persons they are calling.

15 A customised alert system as described herein may be implemented as an extension to, or integrated with, or made to advantageously inter-work with an Internet portal or Instant Messaging System such as typified by Yahoo or Yahoo Instant Messenger, AOL or AOL Instant Messenger or ICQ. For example, the customised alert system and the Instant Messaging System could
20 share user interface, user management system, directory, user names or 'handles' etc.

Although a number of embodiments of the method and system of the present invention have been described, it will appreciated that there may be other
25 variations and modifications that may be made to the embodiments described herein that will still also be within the scope of the present invention.

Claims:

1. A method for selecting the nature and/or form of an alert used to announce a call made by a user participating in a customised alert service, the method including:
- 5
- a. establishing a customised alert service configuration for a participating user, the customised alert service configuration being stored on one or more network accessible devices;
- b. the participating user using a first communications terminal to make a call to a second communications terminal, the call being supported by a first communications service; and
- 10
- c. the second communications terminal announcing the call by activating an alert using a chosen alert descriptor;
- wherein the alert descriptor is chosen according to the customised alert service configuration for the participating user.
- 15
2. A method according to claim 1 wherein the establishing of a customised alert service configuration for a participating user includes selecting and/or providing at least one alert descriptor for association with the participating user's customised alert service, the selection being performed by the participating user using a networked device.
- 20
3. A method according to claim 1 wherein the establishing of a customised alert service configuration for a participating user includes selecting and/or providing at least one alert descriptor for association with the participating user's customised alert service, the selection being performed on behalf of the participating user.
- 25
4. A method according to claim 2 or claim 3 wherein the selecting and/or providing of at least one alert descriptor includes selecting an alert descriptor from a set of available alert descriptors.
- 30

5. A method according to claim 4 wherein the set of selectable alert descriptors is contained on a network accessible device.
- 5 6. A method according to claim 1 wherein alert descriptor information is transmitted from one communications terminal to another during the course of a voice call between two or more terminals.
7. A method according to claim 6 wherein the transmission of alert descriptor information occurs:
 - 10 a. during pauses in voice conversation; or
 - b. after voice conversation has ended; or
 - c. interleaved with voice conversation.
8. A method according to claim 1 wherein the establishing of a customised alert service includes providing information which identifies the participating user or first communications terminal or first communications service.
15
9. A method according to claim 8 wherein the chosen alert descriptor is chosen according to processing of the identification information.
20
10. A method according to claim 9 wherein the processing is performed by the first communications terminal.
- 25 11. A method according to claim 9 wherein the processing is performed by the second communications terminal.
12. A method according to claim 9 wherein the processing is performed by a server device.
30
13. A method according to claim 8 wherein the establishing of a customised alert service configuration for a participating user includes selecting and/or providing ancillary information for the participating user.

14. A method according to claim 13 wherein the chosen alert descriptor is chosen according to processing of the ancillary information and the identification information.
- 5
15. A method according to claim 14 wherein the processing of the ancillary information includes processing variables associated with the ancillary information, the associated variables selected from:
- 10
- a. temporal variables;
 - b. seasonal and cultural variables;
 - c. geographical variables;
 - d. proximity variables; and
 - e. personal variables.
- 15
16. A method according to claim 1 wherein the chosen alert descriptor has been retrieved from memory on-board the participating communications terminal.
- 20
17. A method according to claim 1 wherein the chosen alert descriptor is communicated to the second communications terminal from the first communications terminal.
- 25
18. A method according to claim 1 wherein the chosen alert descriptor is communicated to the second communications terminal from a network accessible device.
19. A method according to claim 17 wherein the chosen alert descriptor is communicated using the first communication service.
- 30
20. A method according to claim 17 or claim 18 wherein the chosen alert descriptor is communicated using a communication path other than the first communication service.

21. A method according to claim 19 or claim 20 wherein the chosen alert descriptor has been communicated to the communications terminal prior to a call set-up process.
- 5 22. A method according to claim 19 or claim 20 wherein the chosen alert descriptor is communicated to the second communications terminal during a call set up process.
- 10 23. A method according to claim 19 or claim 20 wherein the chosen alert descriptor is communicated to the second communications terminal asynchronous to a call set up process.
- 15 24. A method according to claim 20 wherein the alternative communications path makes use of the Internet.
- 20 25. A method according to claim 1 wherein the customised alert service operates within a network of a plurality of communications terminals and servers, wherein at least some of the communications terminals and servers participate in a caching scheme which allows alert descriptors to be sourced from a plurality of different servers or communications terminals within the network.
- 25 26. A method according to claim 1 wherein users who receive calls are able to exercise control over the kinds of customised alerts that they are willing to receive.
- 30 27. A method according to claim 26 wherein different alerts are categorised according to their nature and/or content, and users who receive calls may choose to receive only particular categories of alerts.
28. A method according to claim 26 wherein a user who receives calls may elect that a call be announced by two different alerts, one selected by the receiving user and one selected by a calling user.

29. A computerised system for enabling the nature and/or form of an alert used to announce a call made by a user participating in the system to a communications terminal participating in the system to be determined in accordance with the participating user's preferences, including:
- a. a plurality of communications terminals, at least some of which are capable of receiving and acting on an alert descriptor;
 - b. a data entry device for creating a customised alert service for a participating user;
 - c. configuration software for configuring the participating user's customised alert service, the configuring of the participating user's customised alert service including selecting and/or providing at least one alert descriptor for use with the participating user's customised alert service;
 - d. a database for storing the participating user's customised alert service configuration;
 - e. processing means for choosing an alert descriptor for use with the call made by the participating user to a receiving communications terminal; and
 - f. a communications path for communicating alert descriptors to the receiving communications terminal;
- wherein the chosen alert descriptor is selected in accordance with the configuration of the participating user's customised alert service.
30. A system according to claim 29 wherein the configuring of the participating user's customised alert service further includes providing ancillary information.
31. A system according to claim 29 wherein the configuring of the participating user's customised alert service further includes providing identification information.

32. A system according to claim 29 wherein the processing means is a communications terminal associated with the participating user.
- 5 33. A system according to claim 29 wherein the processing means is the receiving communications terminal.
34. A system according to claim 29 wherein the processing means is a server device.

1/4

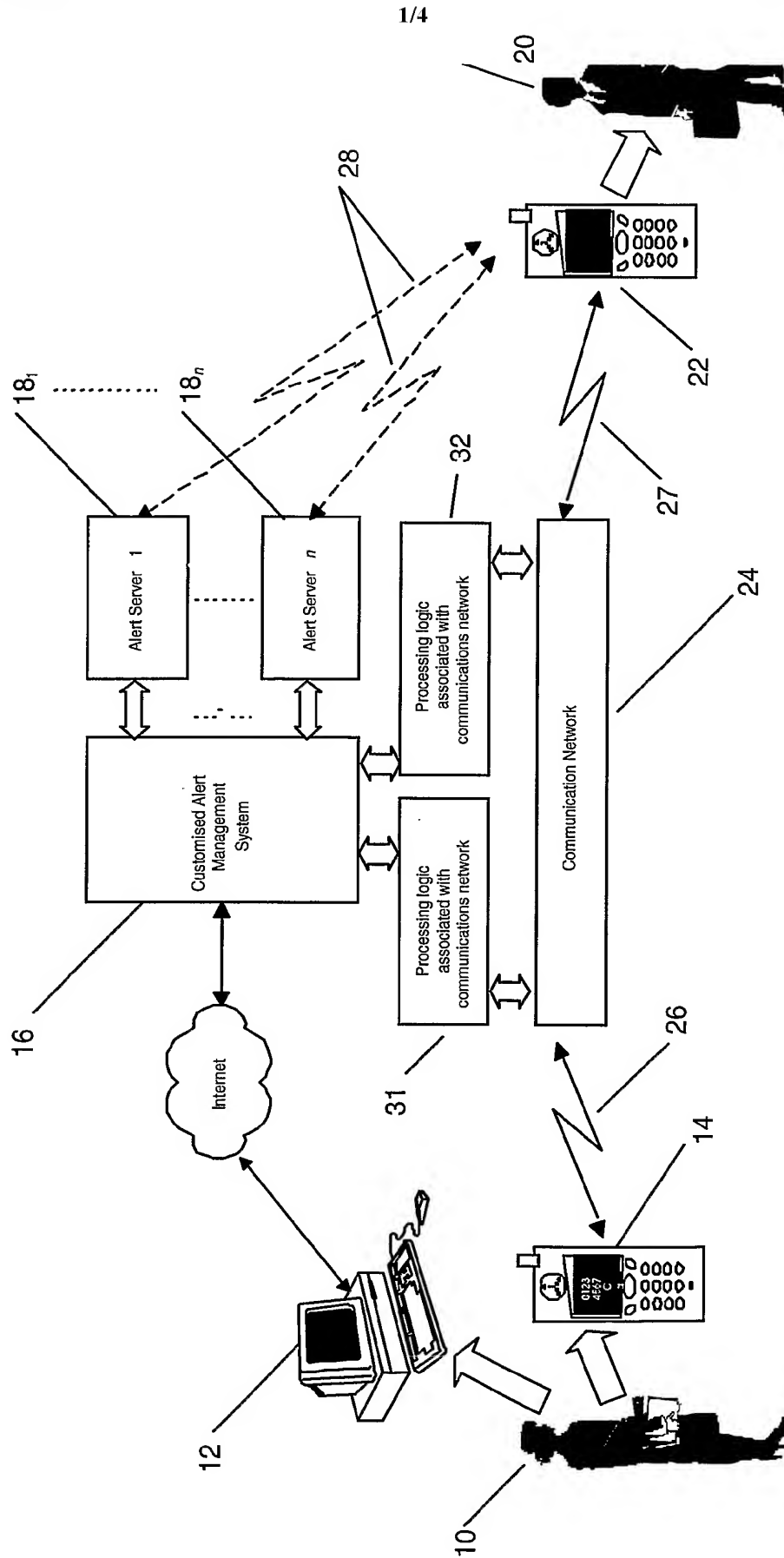


Figure 1

1/4

2/4

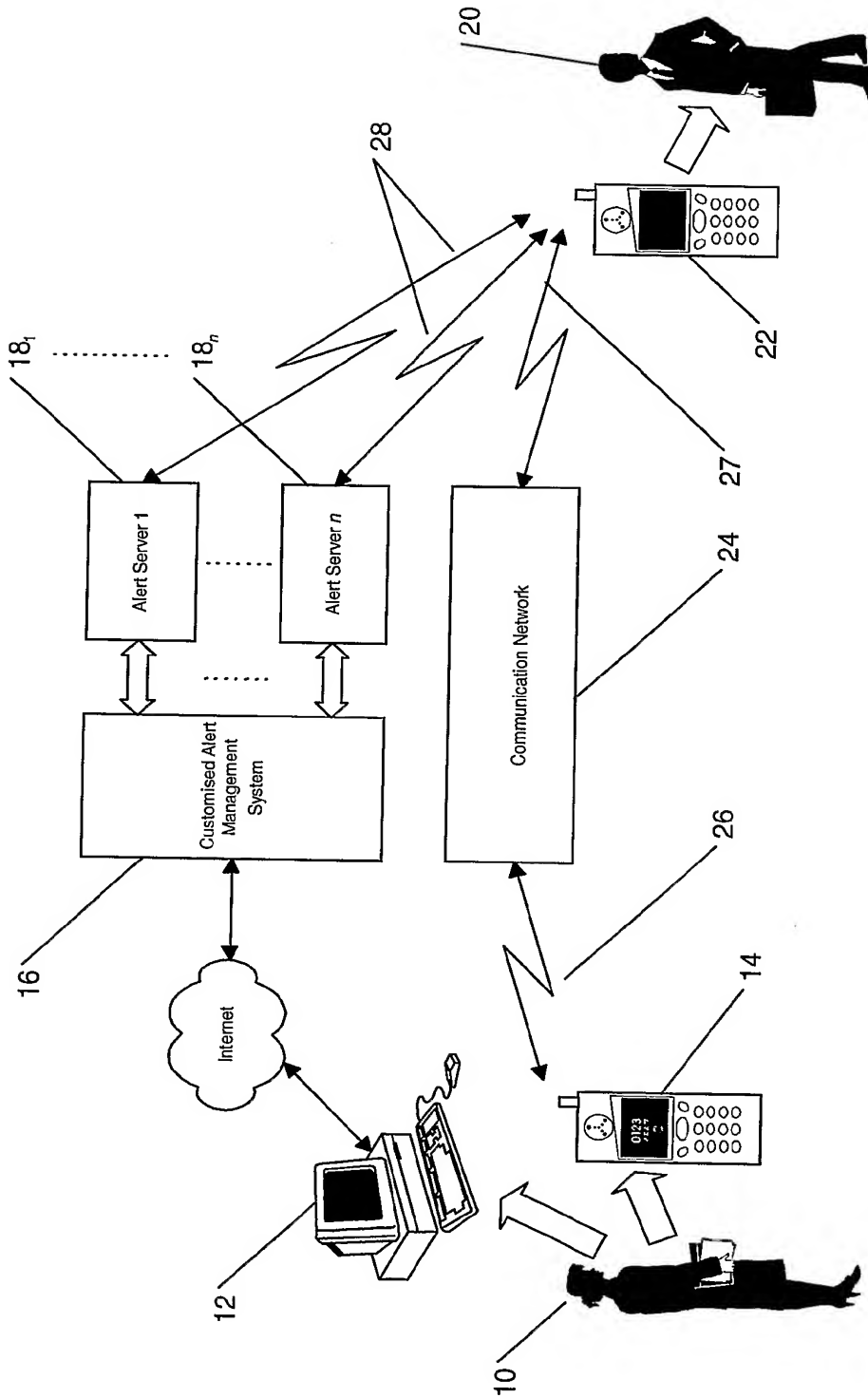


Figure 2

3/4

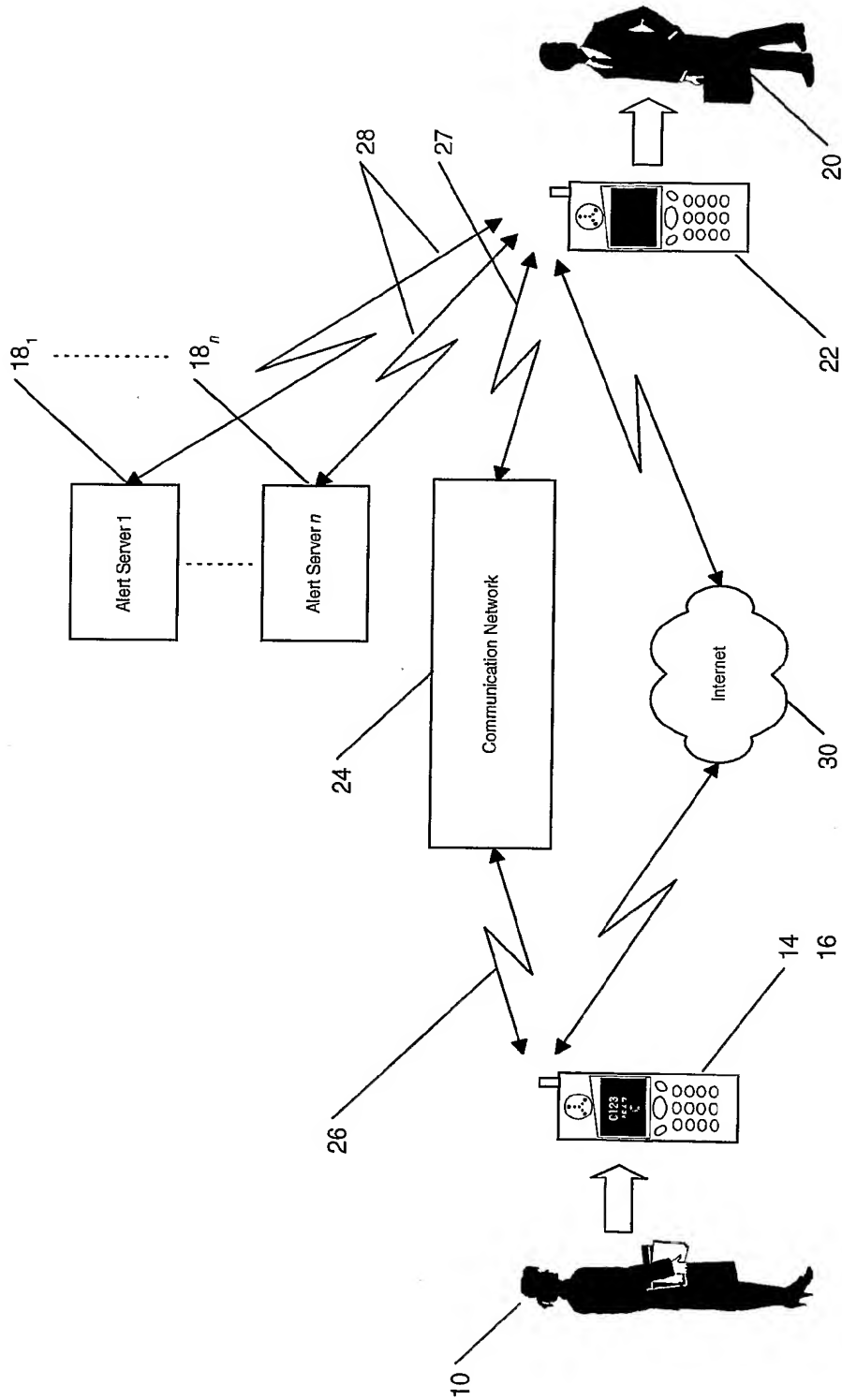


Figure 3

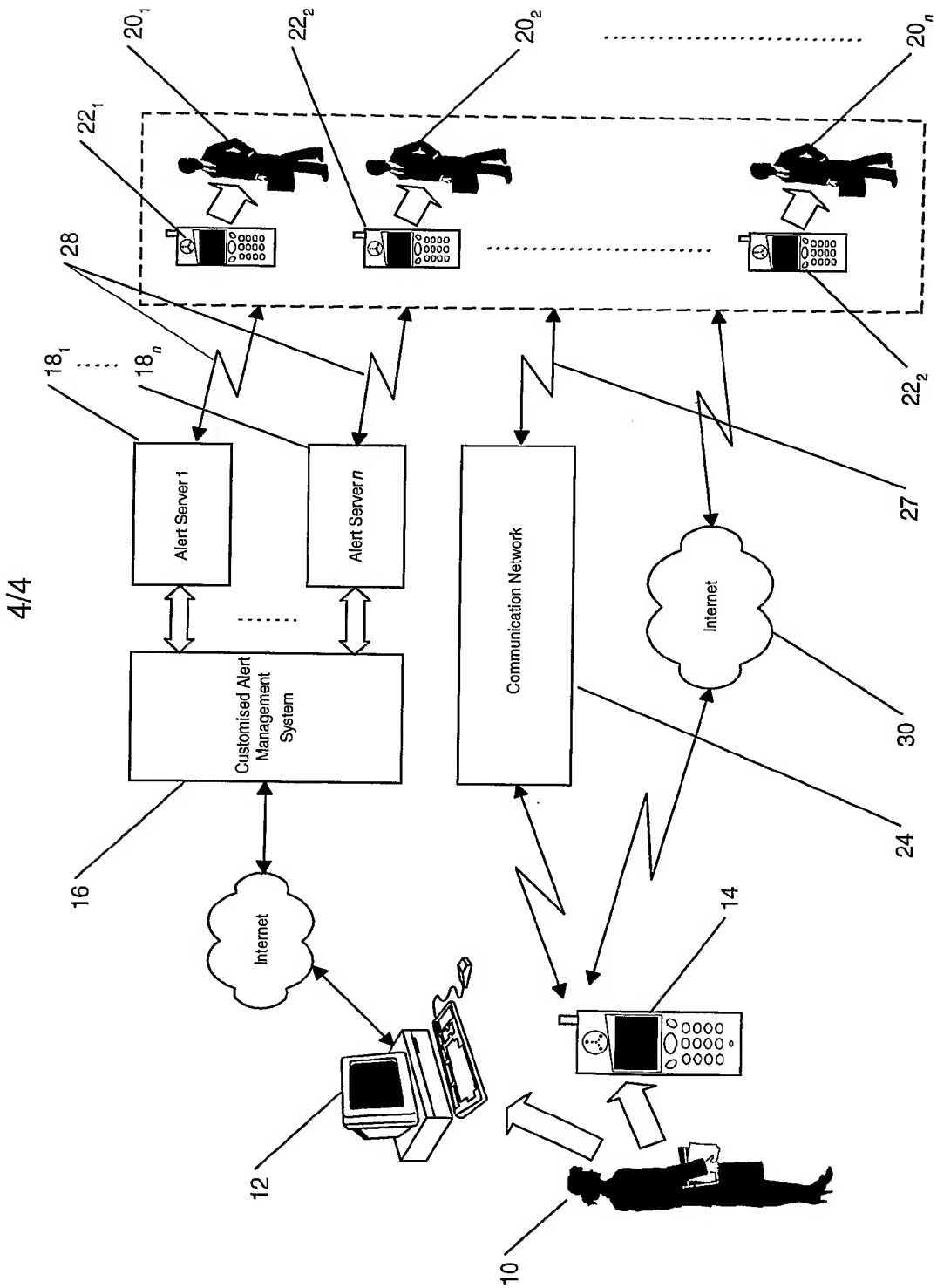


Figure 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU02/00390**A. CLASSIFICATION OF SUBJECT MATTER**Int. Cl. ⁷: H04M 1/57, 1/64, 3/42; H04Q 7/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPAT, USPTO, Espace: phone, call, custom, prefer, select, identif, alert, ring, indicate, vibrate, emission,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5999599A (Shaffer et al), 7 December 1999 whole document	1-34
Y	US 6160489A (Perry et al), 12 December 2000 whole document	1-34
Y	US 5889852A (Rosecrans et al), 30 March 1999 whole document	1-34

☐ Further documents are listed in the continuation of Box C
 ☒ See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
17 May 2002Date of mailing of the international search report
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Information on patent family members

PCT/AU02/00390

Patent Document Cited in Search Report				Patent Family Member			
US	5999599	EP	973309				
US	6160489	AU	25891/95	FR	2723809	GB	2296635
		IT	RM		950400	WO	9600429
US	5889852	EP	858202	JP	10285263		